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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,523	02/09/2004	Sam Nemazie	SiliconStor-03US	1041

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EXAMINER

LEE, CHUN KUAN

ART UNIT PAPER NUMBER

2181

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/775,523	Applicant(s) NEMAZIE, SAM	
	Examiner Chun-Kuan (Mike) Lee	Art Unit 2181	

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address -
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

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Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 13 is objected to because of the following informalities:

in claim 13, line 1, "as recited in claim 1 wherein said arbitration and control causes" should be replace with -as recited in claim 9 wherein said arbitration and control circuit causes-. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

as per claim 8, it appears unclear as to what the switch is switching between, examiner will assume that the switches is switching between the first SATA layer 2 port and the second SATA layer 2 port.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, 5-7, 9-12, 14-17 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Grieff et al. (US Patent 6,961,813).

4. As per claims 1, 9 and 14, Grieff teaches a switch coupled between a plurality of host units and a device via serial advanced technology attachment (SATA) links, for routing frame information there between the first and the second host units and the device, said switch comprising:

- a. a first SATA port (H0_Link Layer 130 of Fig. 1), including a route aware frame information structure (FIS) coupled to a first host unit (col. 2, l. 53 to col. 3, l. 45; col. 4, ll. 5-34 and col. 5, l. 17 to col. 6, l. 56);
- b. a second SATA port (H1_Link Layer 132 of Fig. 1), including a route aware FIS, coupled to a second host unit (col. 2, l. 53 to col. 3, l. 45; col. 4, ll. 5-34 and col. 5, l. 17 to col. 6, l. 56);
- c. a third SATA port (Device-Side Link Layer of Fig. 1), including a route aware FIS, coupled to a device (col. 2, l. 53 to col. 3, l. 45; col. 4, ll. 5-34 and col. 5, l. 17 to col. 6, l. 56); and
- d. an arbitration and control circuit (switch 110 and arbiter module 112 of Fig. 1) for selecting one of the first host or second host units to be coupled to the

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device, through the switch, whenever either one of the first or second host units sends FIS to the device (col. 2, l. 53 to col. 3, l. 45; col. 4, ll. 5-34 and col. 5, l. 17 to col. 6, l. 56);

wherein while one of the first or second host units is coupled to the device, through the switch, the other one of the first or second host units sends FIS to the switch for routing to the device and further wherein the FIS of the first and second host units and the device identify which one of the first or second host units is an origin and/or destination host so that routing of FIS is transparent to the switch thereby reducing the complexity of the design of the switch rendering its manufacturing less expensive (col. 2, l. 53 to col. 3, l. 45; col. 4, ll. 5-34 and col. 5, l. 17 to col. 6, l. 56).

5. As per claims 2,11 and 16, Grieff teaches all the limitations of claims 1, 9 and 14 as discussed above. Grieff further teaches said switch comprising wherein said device is a storage unit (col. 2, l. 53 to col. 3, l. 45; col. 4, ll. 5-34 and col. 15, ll. 9-22).

6. As per claims 3,12 and 17, Grieff teaches all the limitations of claims 1, 9 and 14 as discussed above. Grieff further teaches said switch comprising wherein said switch is employed in an enterprise system (col. 2, l. 53 to col. 3, l. 45; col. 4, ll. 5-34 and col. 15, ll. 9-22).

7. As per claim 5, Grieff teaches all the limitations of claim 1 as discussed above. Grieff further teaches said switch comprising wherein a bit is used to indicate which host

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is the origin or destination of the FIS (col. 2, l. 53 to col. 3, l. 45; col. 4, ll. 5-34 and col. 5, l. 17 to col. 6, l. 56), as each FIS comprise an associated 5-bit tag utilized for identifying which host is the origin or the destination of the FIS.

8. As per claim 6, Grieff teaches all the limitations of claim 1 as discussed above. Grieff further teaches said switch comprising wherein said first, second and third ports are layer 2 ports (link layer ports) (Fig. 1).

9. As per claim 7, Grieff teaches all the limitations of claim 1 as discussed above. Grieff further teaches said switch comprising wherein the switch provides for `route aware` routing (col. 2, l. 53 to col. 3, l. 45; col. 4, ll. 5-34; col. 5, l. 17 to col. 6, l. 56 and col. 12, l. 60 to col. 14, l. 21), as FIS are properly routed between one of the associated hosts and the device.

10. As per claim 19, Grieff teaches a method for communication between multiple host units and a device, through a serial advanced technology attachment (ATA) switch coupled to the multiple host units and the device using serial ATA links routing frame information there between, comprising:

- a. coupling a first SATA port (H0_Link Layer 130 of Fig. 1), including a route aware frame information structure (FIS), to a first host unit for connection to the switch (col. 2, l. 53 to col. 3, l. 45; col. 4, ll. 5-34 and col. 5, l. 17 to col. 6, l. 56);

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- b. coupling a second SATA port (H1_Link Layer 132 of Fig. 1), including a route aware FIS, to a second host unit for connection to the switch (col. 2, l. 53 to col. 3, l. 45; col. 4, ll. 5-34 and col. 5, l. 17 to col. 6, l. 56);
- c. coupling a third SATA port, including a route aware FIS, for connection to a device (col. 2, l. 53 to col. 3, l. 45; col. 4, ll. 5-34 and col. 5, l. 17 to col. 6, l. 56);
- d. arbitrating (arbitrate utilizing the arbiter module 112 of Fig. 1) between the first and second host units and the device (col. 2, l. 53 to col. 3, l. 45; col. 4, ll. 5-34 and col. 5, l. 17 to col. 6, l. 56);
- e. selecting one of the first or second host units for coupling to the device through the switch when either of the first or second host units sends commands for execution by the device (col. 2, l. 53 to col. 3, l. 45; col. 4, ll. 5-34 and col. 5, l. 17 to col. 6, l. 56);
- f. coupling the device to the selected one of the first or second host units (col. 2, l. 53 to col. 3, l. 45; col. 4, ll. 5-34 and col. 5, l. 17 to col. 6, l. 56); and
- g. while the selected one of the first or second host units is coupled to the device, the other one of the first or second host units sending FIS to the switch for routing to the device (col. 2, l. 53 to col. 3, l. 45; col. 4, ll. 5-34 and col. 5, l. 17 to col. 6, l. 56);

during the sending step g., the FIS of the first and second host units and the device identifying which one of the first or second host units is an origin and/or destination host so that routing of FIS is transparent to the switch thereby reducing the

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complexity of the design of the switch rendering its manufacturing less expensive (col. 2, l. 53 to col. 3, l. 45; col. 4, ll. 5-34 and col. 5, l. 17 to col. 6, l. 56).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 4, 13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grieff et al. (US Patent 6,961,813) in view of Talati (US Patent 6,763,402).

Grieff teaches all the limitation of claims 1, 9 and 14 as discussed above, where Grieff further teaches the switch is implemented in an enterprise-class ATA- based storage system, allowing multiple host to access the same device at the same time (col. 2, l. 57 to col. 4, l.1 6).

Grieff does not expressly teach the concurrent access of the device by the first and the second host unit

Talati teaches a system and a method comprising wherein two or more host can have simultaneous concurrent access to the same volume (col. 1, l. 7 to col. 2, l. 36).

It would have been obvious to one of ordinary skill in this art, at the time of invention was made to include Talati's concurrent simultaneous concurrent access to the same volume by two or more hosts into Grieff's switch system.

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The suggestion/motivation for doing so would have been to have more than one computer user simultaneous access the same data storage device (Talati, col. 1, l. 7 to col. 2, l. 36).

Therefore, it would have been obvious to combine Talati with Grieff for the benefit of enabling multiple host simultaneous concurrent accessing the same storage device.

12. Claim 8 rejected under 35 U.S.C. 103(a) as being unpatentable over Grieff et al. (US Patent 6,961,813) in view of Kreifels (US Patent 4,891,788).

Grieff teaches all the limitations of claim 1 as discussed above, where Grieff further teaches said switch comprising wherein the switch switches between the first SATA layer 2 port and the second SATA layer 2 port (col. 2, l. 53 to col. 3, l. 45; col. 4, ll. 5-34 and col. 5, l. 17 to col. 6, l. 56); and includes inbound buffers (Fig. 1, ref. 120, 122).

Grieff does not expressly teach said switch comprising a dual ported first-in-first-out (FIFO).

Kreifels teaches a system and a method comprising a dual port FIFO (Fig. 1).

It would have been obvious to one of ordinary skill in this art, at the time of invention was made to include Kreifels' dual port FIFO into Grieff's switch's inbound buffers. The resulting combination of the references teaches the switch further comprising the utilization of dual port FIFO as inbound buffers.

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The suggestion/motivation for doing so would have been enabling the read and write operation of the inbound buffer to be independent of each other (Kreifels, col. 1, l. 15 to col. 2, l. 6).

Therefore, it would have been obvious to combine Kreifels with Grieff for the benefit of implementing the inbound buffer with read and write operation independent of each other.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chun-Kuan (Mike) Lee whose telephone number is (571) 272-0671. The examiner can normally be reached on 8AM to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fritz M. Fleming can be reached on (571) 272-4145. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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03/23/2006

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